

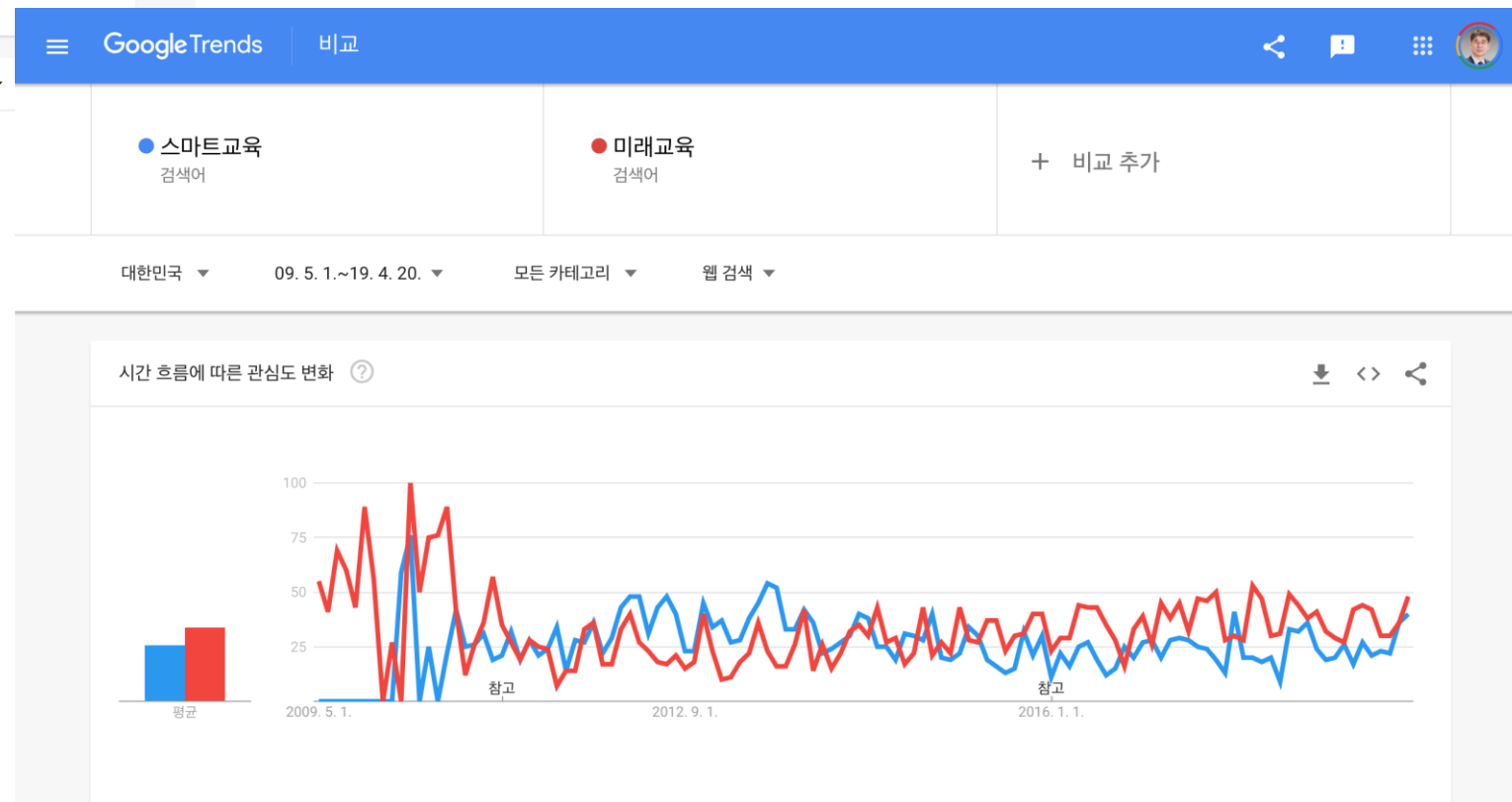
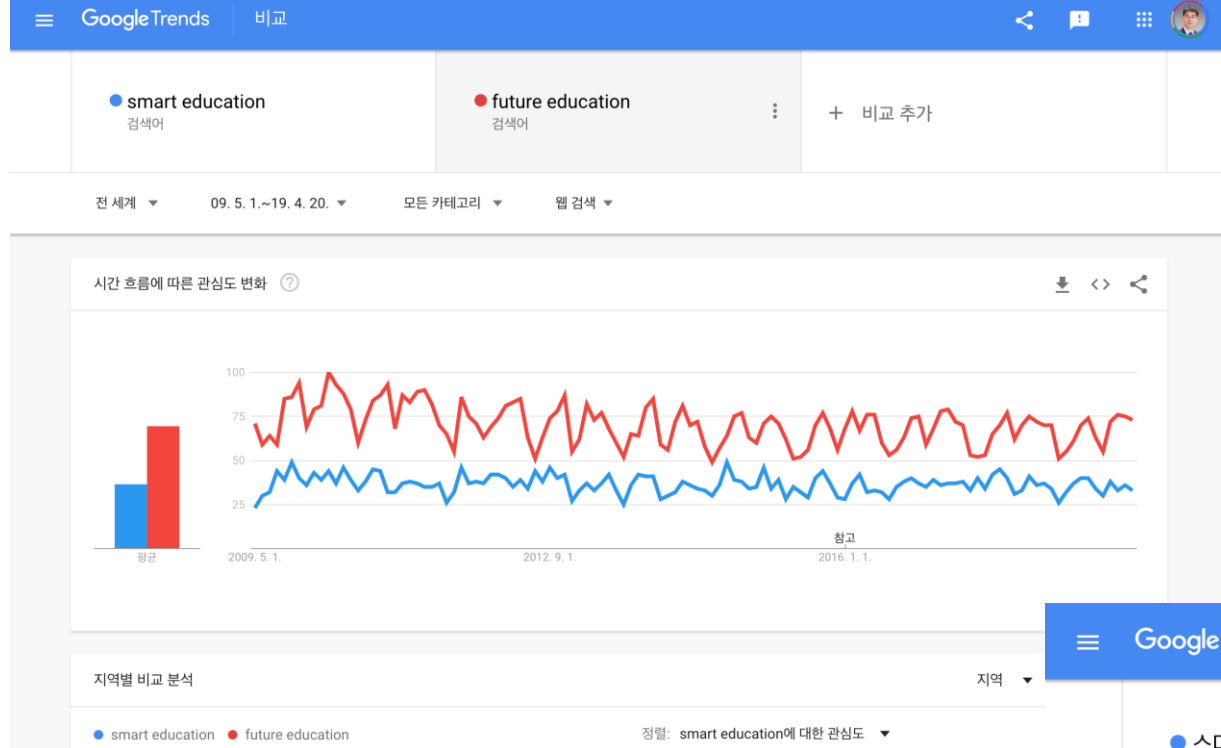
Smart Education under Alphago Age

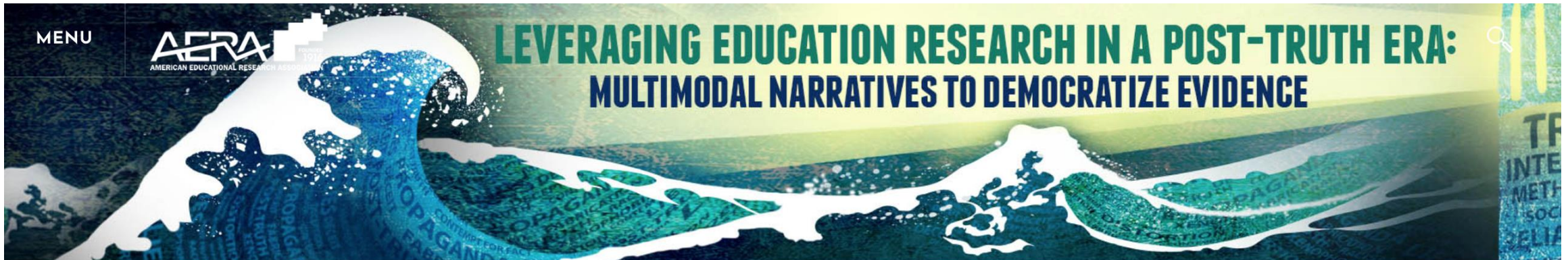
Seyeoung Chun
PRESIDENT, Smart Education Society

스마트교육을 아시나요?









2019 AERA ANNUAL MEETING | APRIL 5 - 9, 2019 | TORONTO, CANADA

Each year, the **American Educational Research Association (AERA)** Annual Meeting is the world's largest gathering of education researchers and a showcase for groundbreaking, innovative studies in an array of areas. Join us at the **Metro Toronto Convention Centre**, **April 5 - 9, 2019**, for five rewarding days of ideas, engagement, networking, and professional advancement.

Quick Links: [Entry Into Canada](#) | [FAQ](#) | [2019 Print Program Files](#) | [Program Schedule](#)



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[PROGRAM](#)



[MEETING SERVICES](#)



[EXHIBITS |](#)

Leaving Toronto AERA 2019.

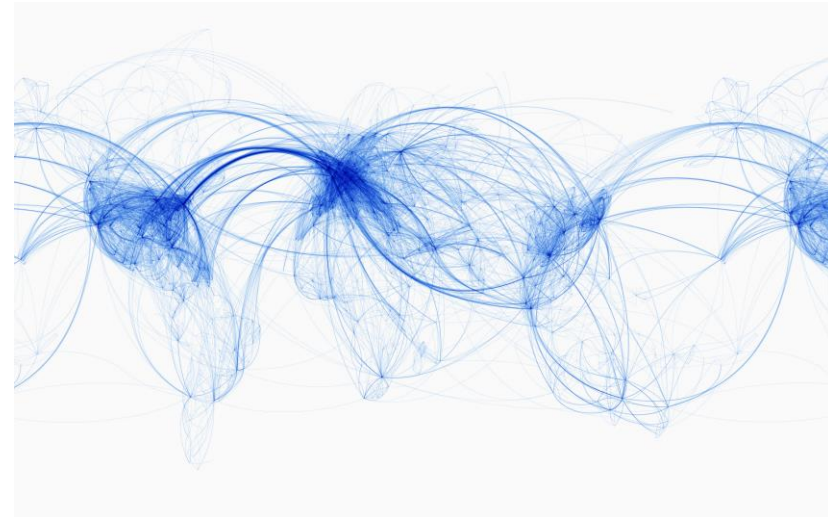
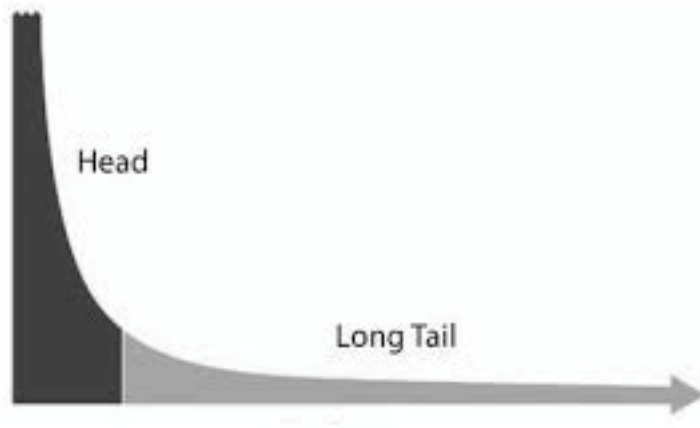
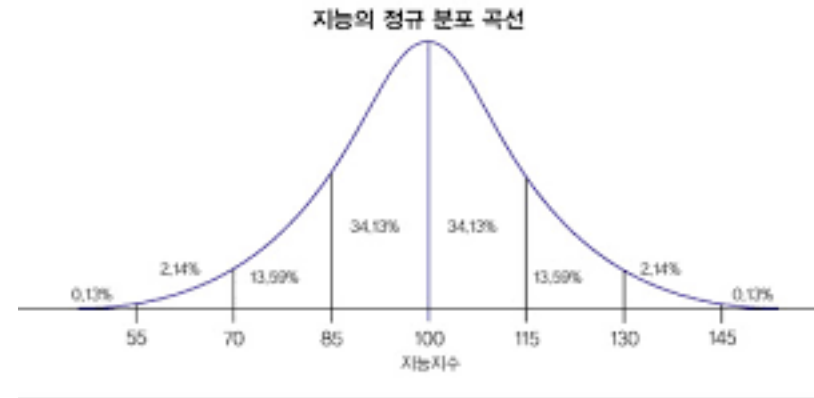
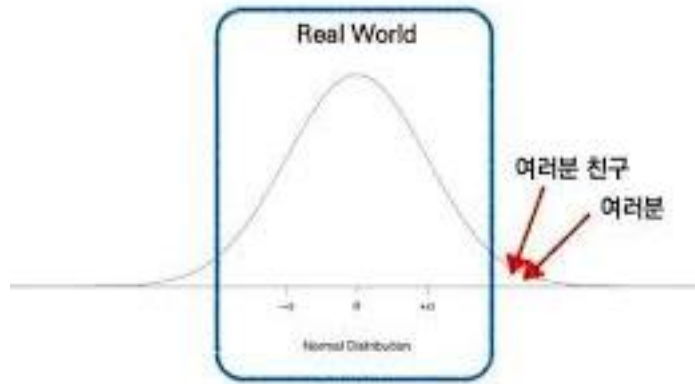
Aera is the largest association of educational researchers in the world. Aera 2019 celebrates its 100th anniversary this year. As said, Some about 25000 researchers attended and around 100 even from Koreans in and out.

My impression is a sort of sorrow feeling somewhere in the lost world. Too luxuries of jargons and big discourses, struggling for searching the exit from the prisons of education.

Education is locked in. There must be an emergent exit out the education initiated in 2011 by Korean people was too early. It showed a tiny slit. Renaissance of Korean education world.



정상분포와 멱함수 분포, 당신은 어느 쪽에 속해 있습니까?





질문 1: 미달자는 더 늘어날까요 ?

질문 2: 더 늘어나면 왜 안될까요 ?

질문 3: 미달자 최소 기준은 있을까요 ?

기초학력미달자란 ?

1. 모른다.
2. 20점 미만자.
3. 난이도 20% 이하 문제도 못 푸는 학생 ?

지능이란 것도 사실은....

1. 모른다.
2. 언어와 수학 점수일 뿐이다
3. 그것도 주로 영어....?

Does Education Really Matter ?

Yes, It Does ! See Korea !

Indeed, Since Human
Civilization It Has Been: Egypt,
Sumer, Hellenism, Islam and
even to Anglo-Saxons.....

Education First by UN SDG.

However, We do not know how
it really matters,,,,,,

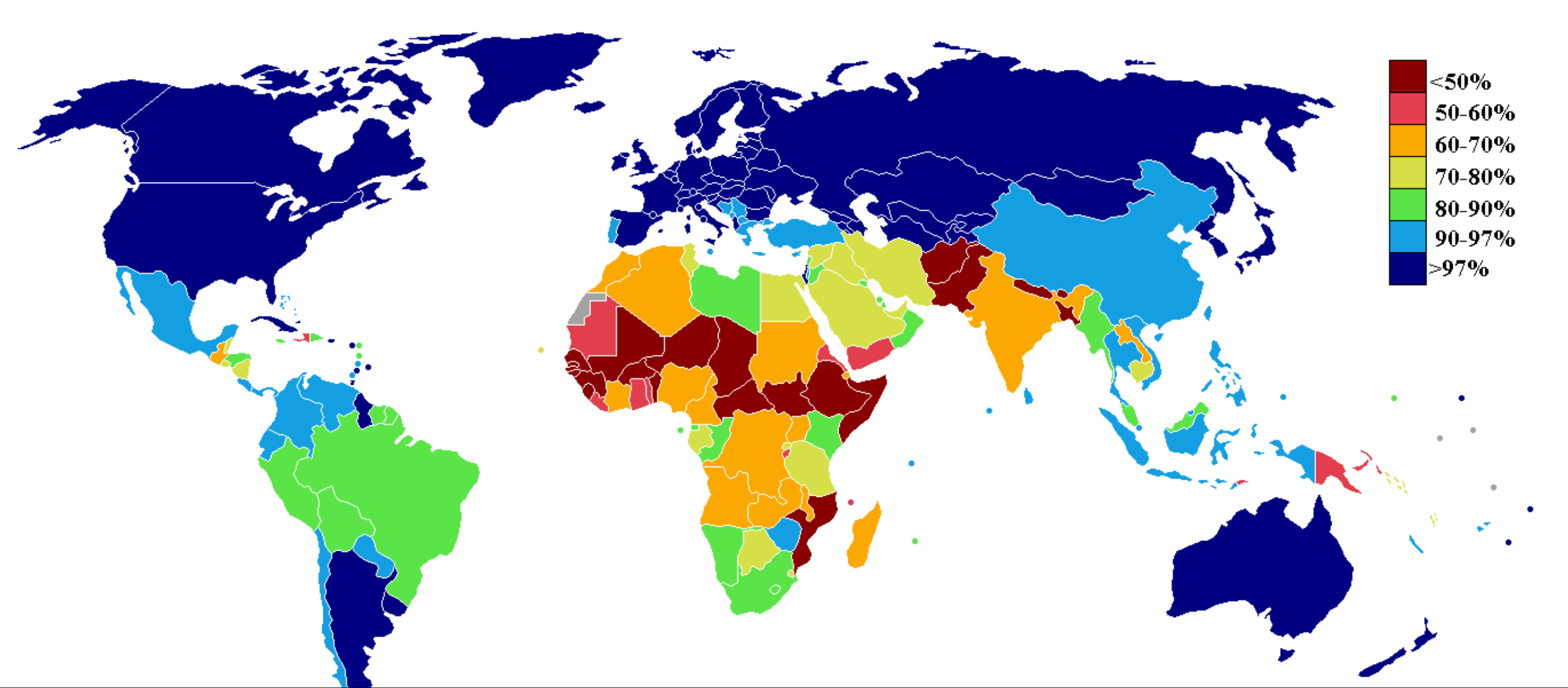


Education is the problem?



그들은 학교에 왔는가?
그들은 공부를 하는가?





Global Literacy Rates, Global Development Gaps

But,
HOW ?
Then in
Korea.....





Secrets of Korean Success

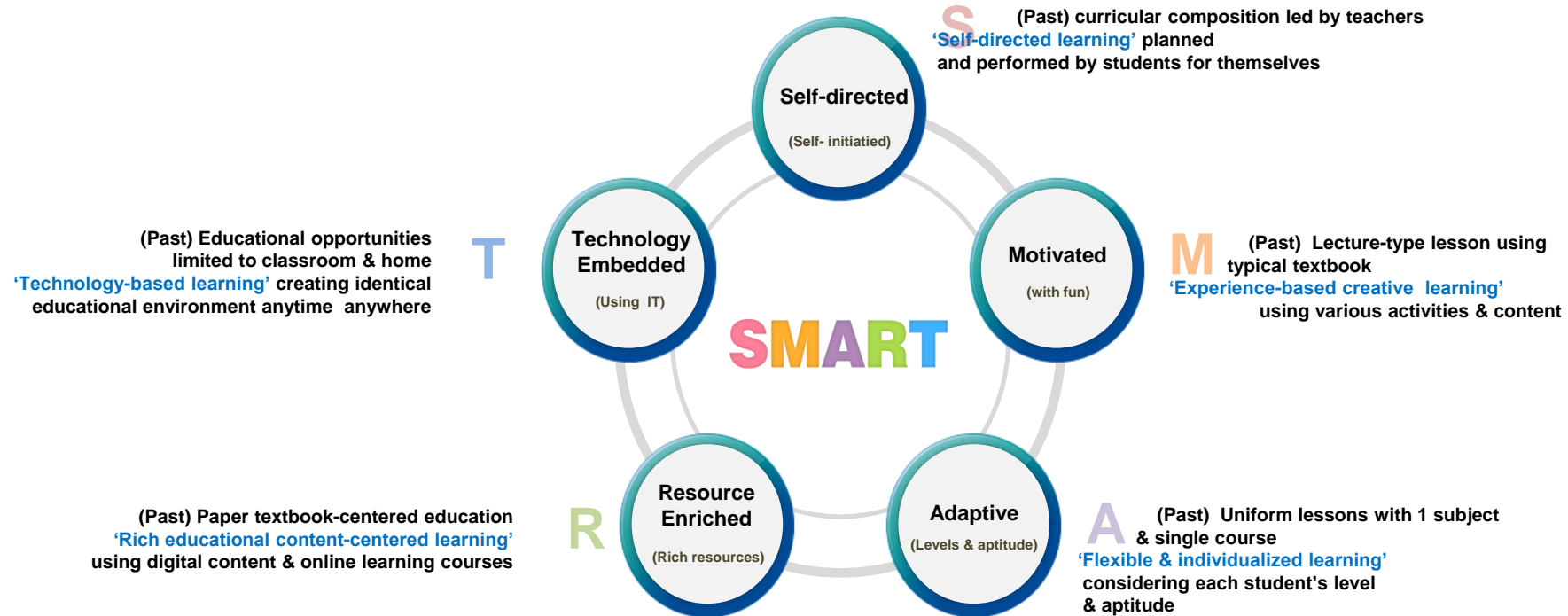
- Hangul by King Sejong.
- Historical assets of literary culture.
- Social demand of education known as the education fever.
- And Many other unknown secrets...
- One clue unknown: 홍익인간 (the maximum interests to human beings) as the national goal of education proclaimed.

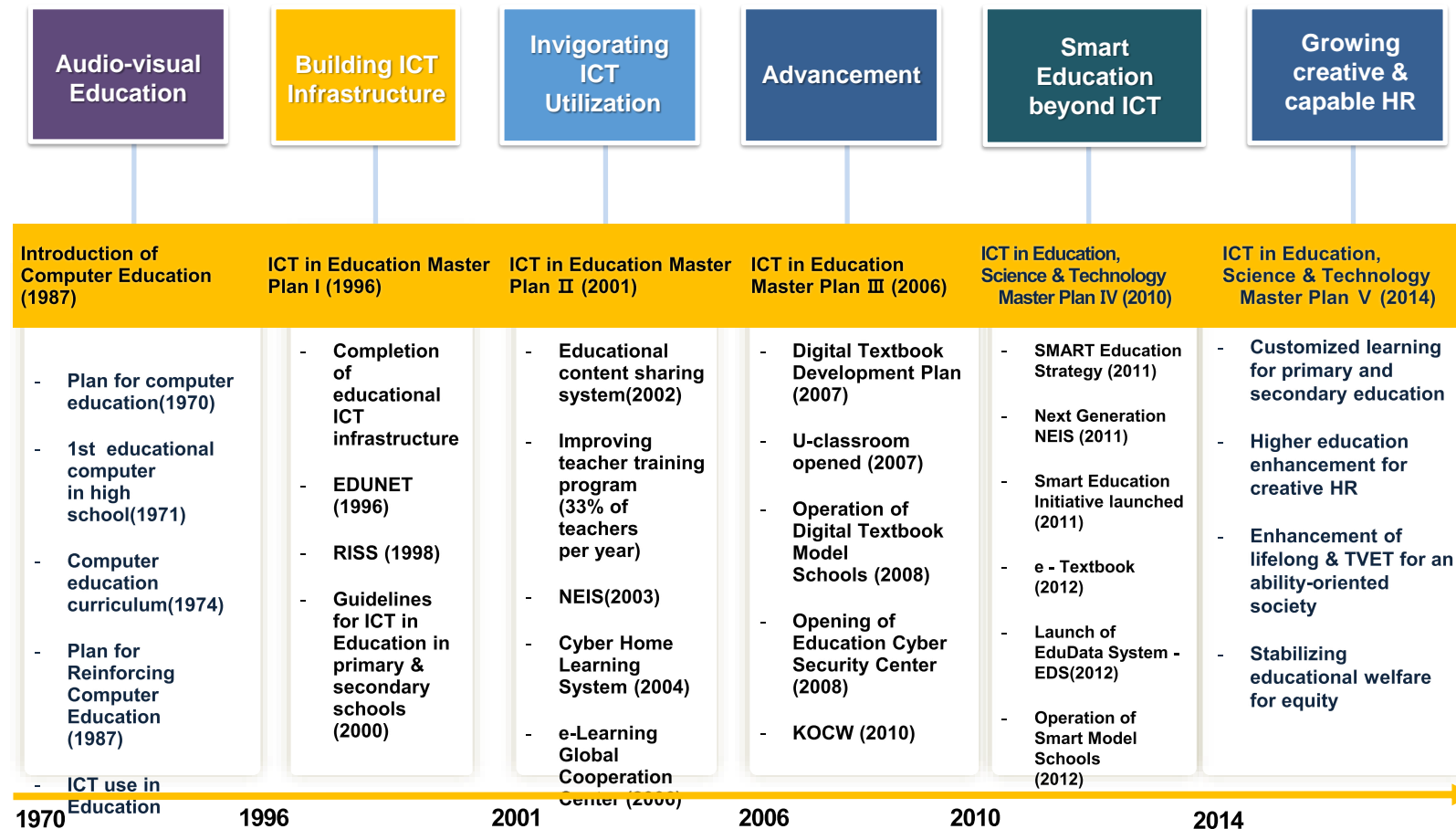
There was one smart challenge, 2011 in Korea !



Definition of SMART Education

SMART Education aims to build an intelligent customized learning system for strengthening competencies of **learners in the 21st century** and to be a driving force for innovating educational system, including educational environment, content & methods, and assessment





Progress of ICT in Education to Smart Education

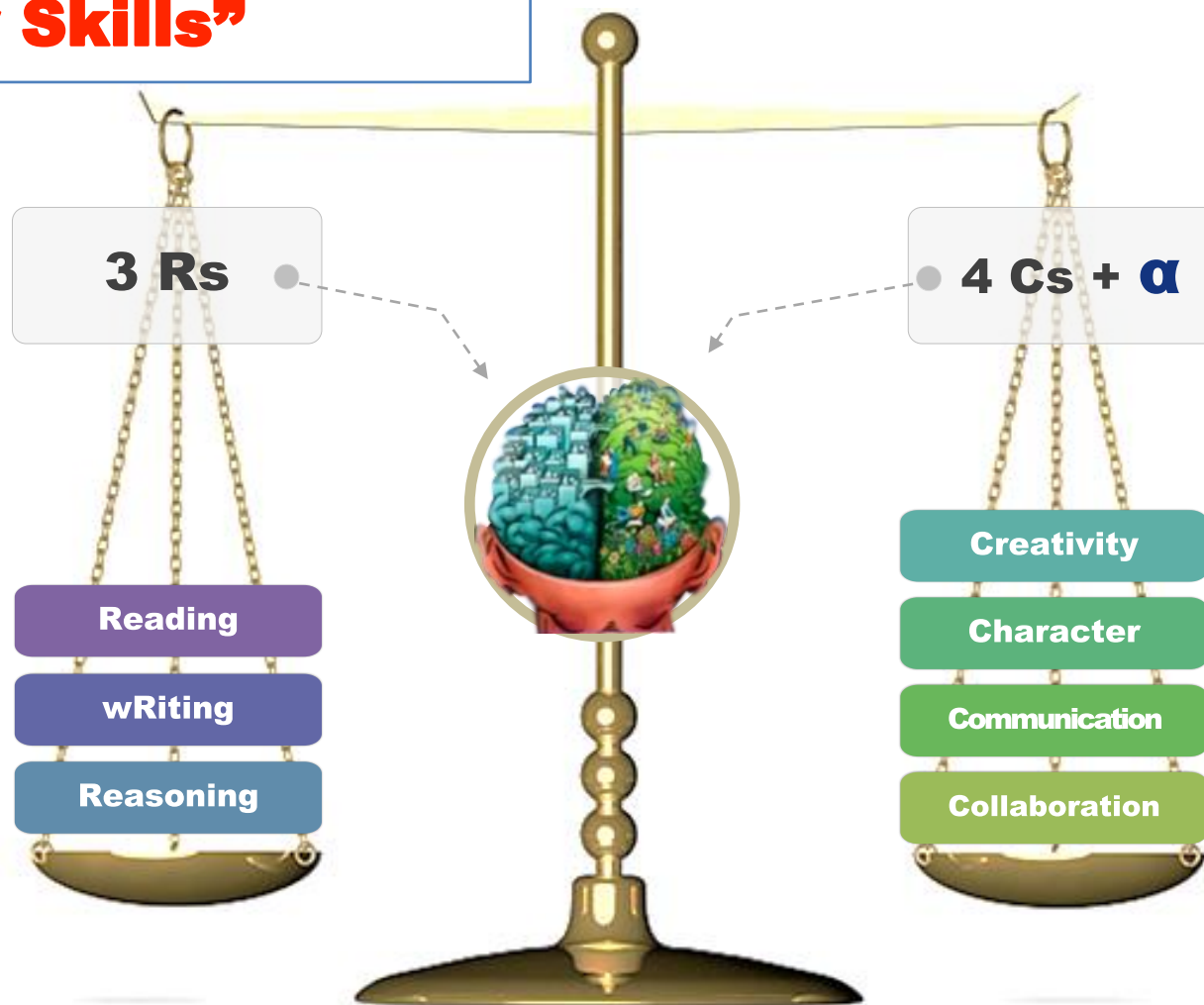
But stopped soon, by politics !

By the way,
what pedagogical implications
do we have?

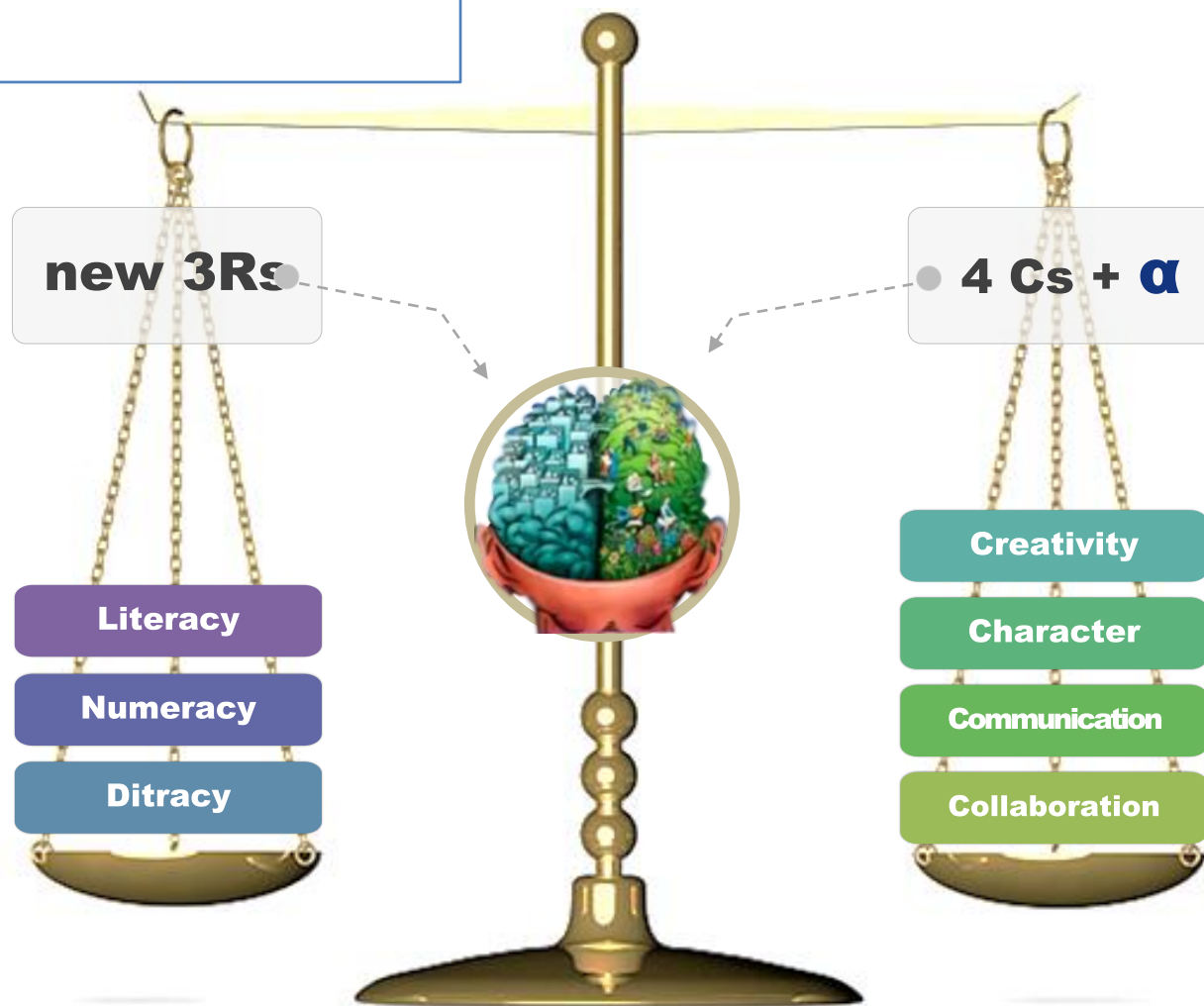
그런데, 왜 우리는 그동안
주춤했을까?

사실, 우리는 방법을 찾아왔으며,
조금씩 나아가고 있는 중이다.

Some impossible mission ? “21st Century Skills”



Some possible dream ? “New 3 Rs”



Before 21c:

Education = F(Literacy)

=F(R^eading, wRⁱting, R^eckoning)

After 21c:

Education = F(21st skills)

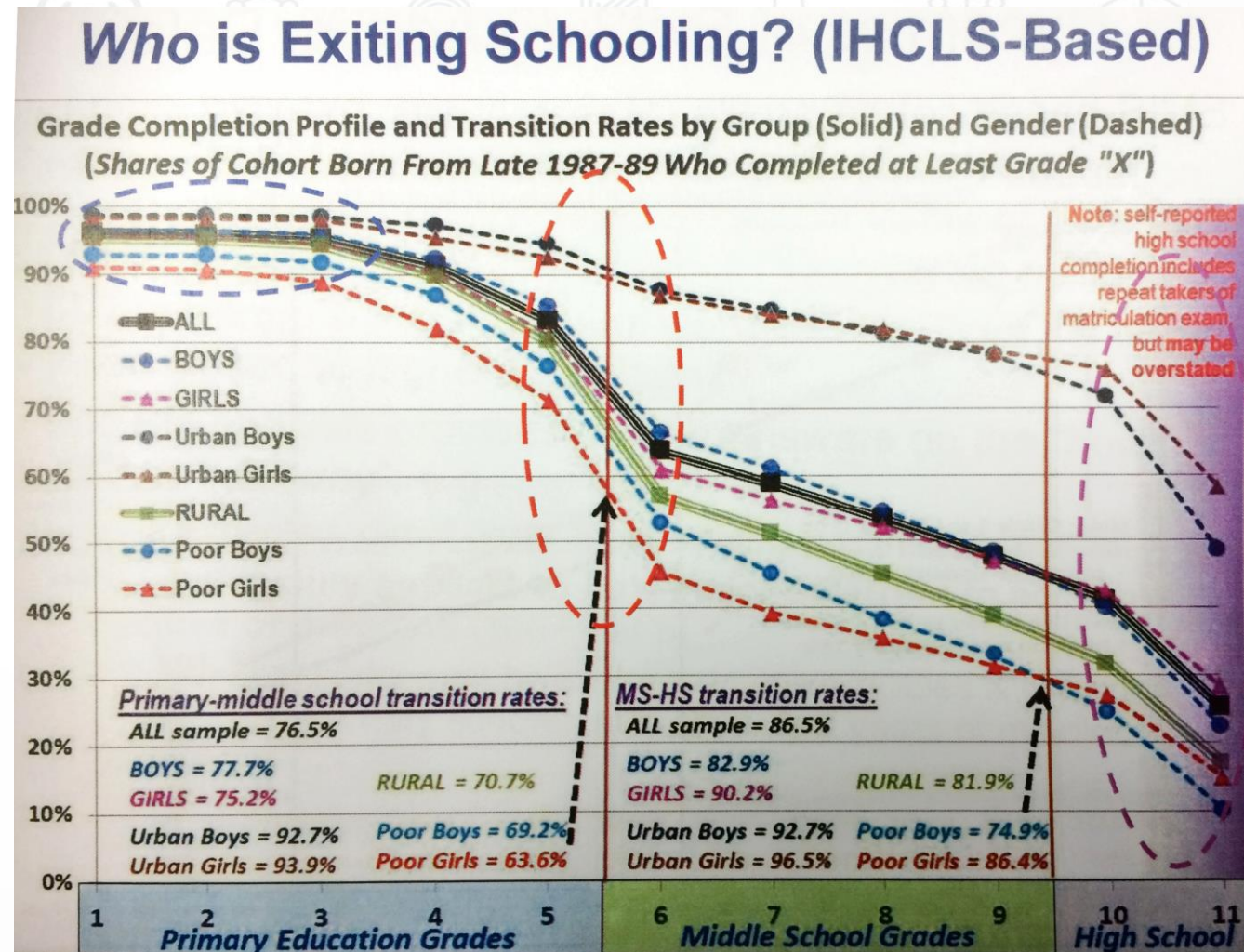
=F(Literacy, Numeracy, Diteracy)



One Example: Myanmar Report on Education

British
surprised at
higher adult
literacy in
Myanmar
than in
London when
they came in
1890s !

However,,,,,,



최초의 교과, 영원한 교과 !

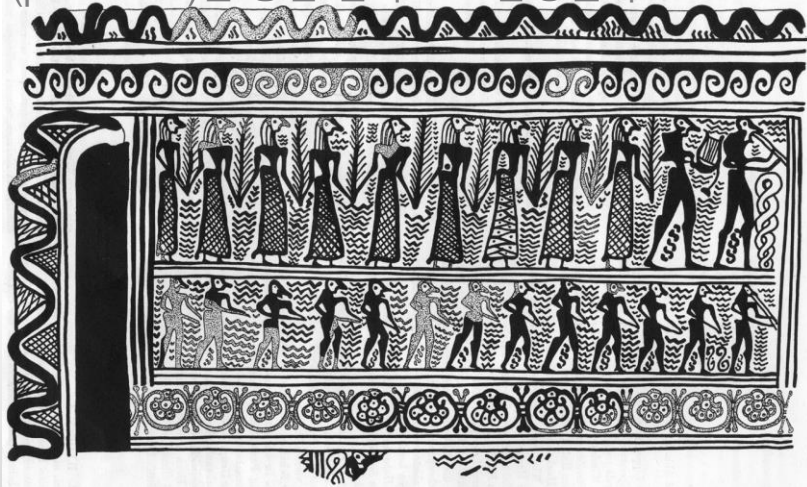


May 20, 2013

역사를 바꾼 위대한 교수법들 !

Greek Chorus by Plato (Nomoi, 법률)

『법률』에서 절제는 시민교육의 목적이며 절제의 함양은 합창가무(chorus)와 전문(prooimion)을 통한 설득으로 완성된다



Havruta by Jews



공자왈, 글자를 배우라 !




Periodic Table of Hangul

[ha:n.gul]

What are Jamo?

Jamo are the symbol that is used to create Hangul syllables. Jamo are the combination of the words *Jaum* (consonant) and *Mosum* (vowel). Jamo can be vowels or consonants, and are the building blocks of the Hangul script.

Name of the Jamo → 기역
Jamo → 
Romanization → g, k
Pronunciation as the initial → Start of a word [k]
Pronunciation as the final → Start of a syllable [g]
IPA symbol → The final [k]

The first part of any syllable in Hangul always begins with a consonant or a consonant cluster. This Jamo is called "The Initial".

There is only one vowel in each syllable. The vowel comes second and is called "The Medial".

Vertical shaped vowels are placed on the right side of "The Initial". (Rule ① and ③)

The Initial → G

The Medial → U

In addition to the basic consonants, the modern Hangul system allows the five twin consonant clusters (ㄲ, ㄳ, ㄴㅇ, ㄴㅇ, ㄴㅇ), to be used as "The Initial".

Horizontal shaped vowels (ㅏ, ㅑ, ㅓ, ㅕ, ㅗ, ㅛ) are placed under "The Initial" and before "The Final". (Rule ② and ④)

Consonants
Basic Consonants
Twin Clusters
Other Clusters
Vowels
Basic Vowels
Vertical Diphthongs
Vertical + Horizontal Diphthongs

아
[a]
"a" as in father.

Romanized alphabet is a generalized translation of the Hangul Jamo. It does not represent the actual pronunciation.

Unlike English vowels, Hangul vowels have only one pronunciation.

The third part of a syllable is called "The Final". This Jamo must be a consonant, a consonant cluster, or nothing.

The Final → N

ㄴ, ㄷ, and ㄹ are the only consonants that cannot be applied at the position of "The Final".

First encounter: Letter & Number

Consonants

기역
Start of a word [k]
Start of a syllable [g]
The final [k]

나
[n]
Pronounce as N in any position.

다
Start of a word [d]
Start of a syllable [g]
The final [d]

라
The initial [l], [r]
The final [r]

마
[m]
Pronounce as M in any position.

바
Start of a word [b]
Start of a syllable [b]
The final [p]

사
The initial [s]
A soft /s/

자
No sound value as the initial
The final [j]

차
Start of a word [ch]
The initial [t]
The final [t]

카
[k]
Pronounce as K in any position.

타
[t]
Pronounce as T in any position.

파
[p]
A soft /p/

차
The initial [ch]
The final [t]

차
The initial [ch]
The final [t]

차
The initial [ch]
The final [t]

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The final [t]

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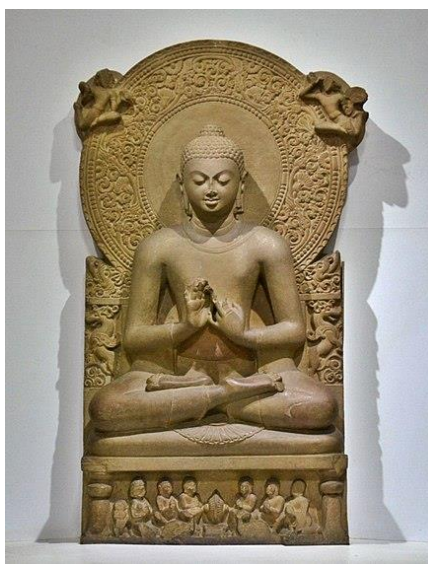
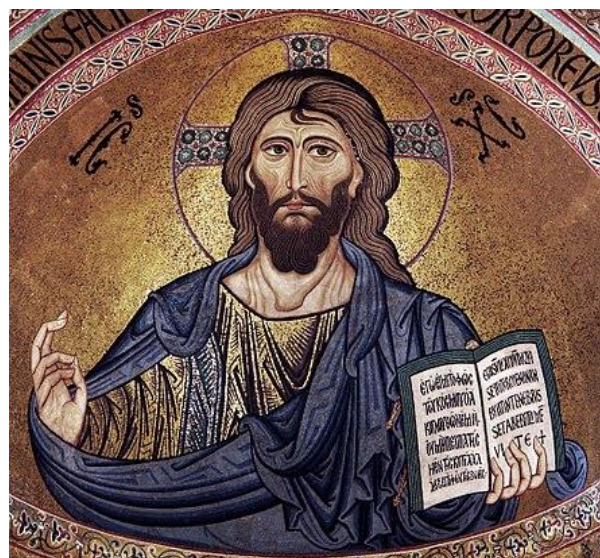
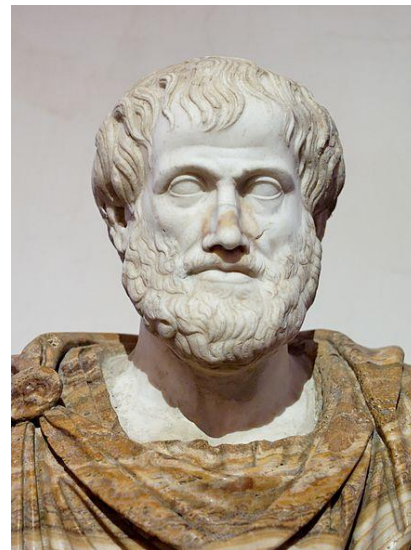
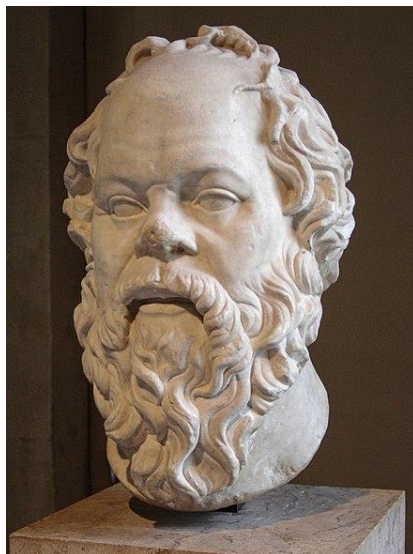
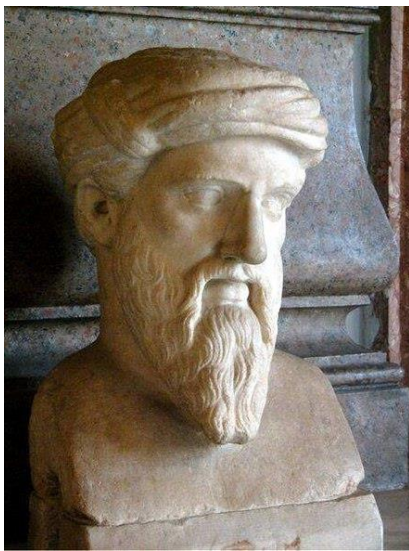
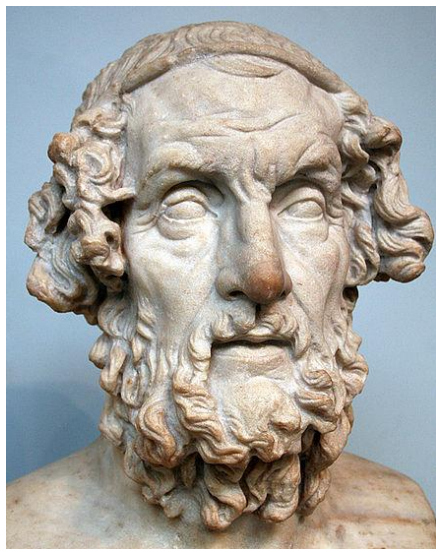
차
The initial [ch]
The final [t]

차
The initial [ch]
The final [t]

차
The initial [ch]
The final [t]

차
The initial [ch]
The final [t]

차
The initial [ch]
The final [t]



LOGOS



0



**Egyptian
hieroglyphics**



Sumer cuneiform

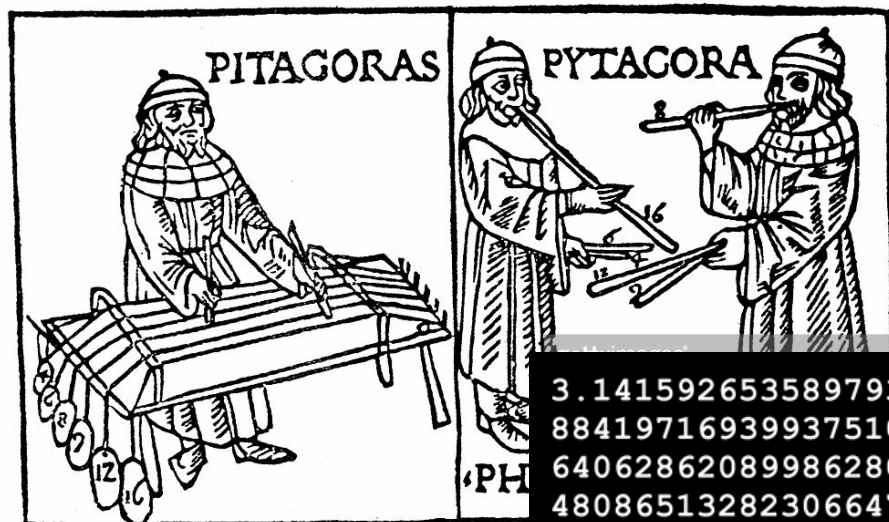


Chinese letters

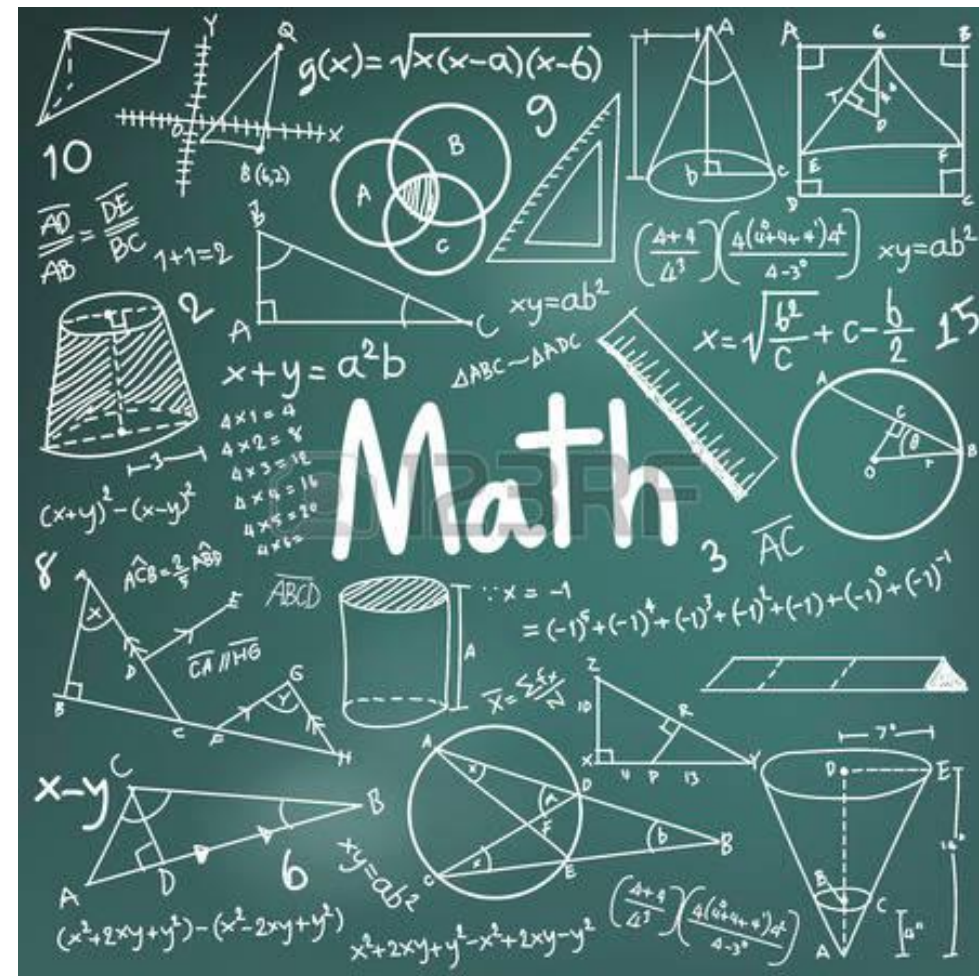


**Roman
alphabetics**

Tools of literacy



3.141592653589793238462643383279502
88419716939937510582097494459230781
64062862089986280348253421170679821
48086513282306647093844609550582231
72535940812848111745028410270193852
11055596446229489549303819644288109
75665933446128475648233786783165271
20190914564856692346034861045432664
82133936072602491412737245870066063
15588174881520920962829254091715364
36789259036001133053054882046652138
41469519415116094330572703657595919
53092186117381932611793105118548074
46237996274956735188575272489122793



Tools of Numeracy

A close-up photograph of a thick, antique book. The image shows the fore-edge of the pages, which are heavily aged, discolored to a yellowish-brown hue, and show significant wear, including fraying and loose fibers. The binding structure is visible, showing the layers of paper and the underlying support. A dark, patterned cloth cover is visible at the bottom left corner.

Second encounter: Paper

history of paper

http://en.wikipedia.org/wiki/History_of_paper





코란의 기적: 종이와의 만남, 그리고 사라센 과학의 공헌



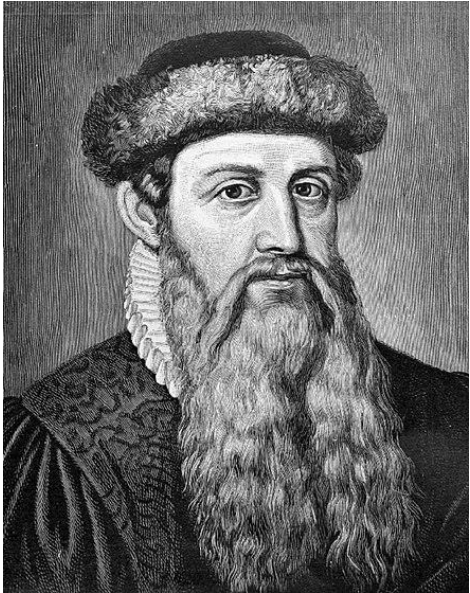
실크로드, 종이의 전래

코란 최고본(버밍엄대학)

지혜의 집(아바스왕조)

Third encounter: Printing

인쇄술 발전에서 과학 혁명까지



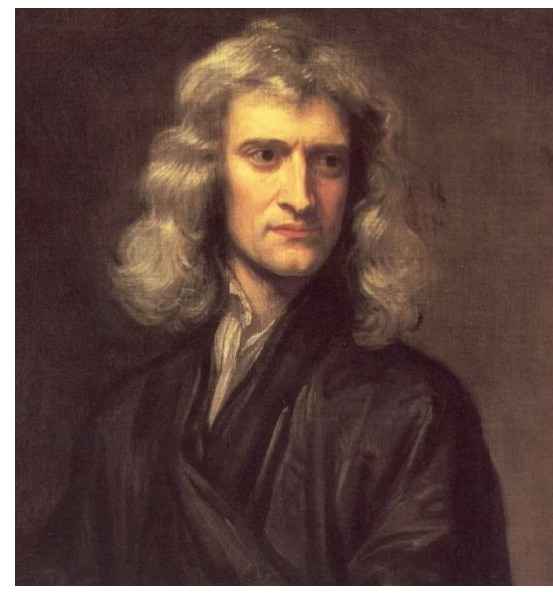
구텐베르크
인쇄술



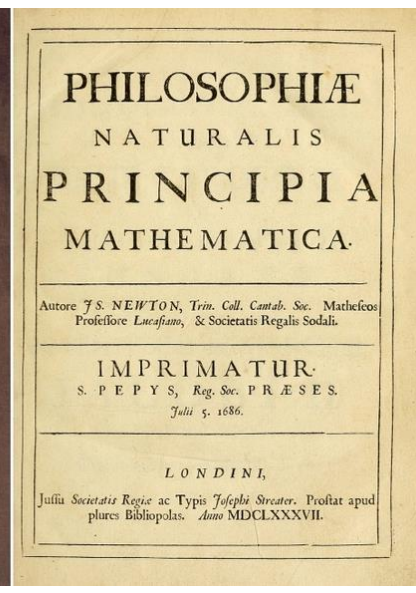
마르틴 루터
종교개혁



데카르트
이성의 발견

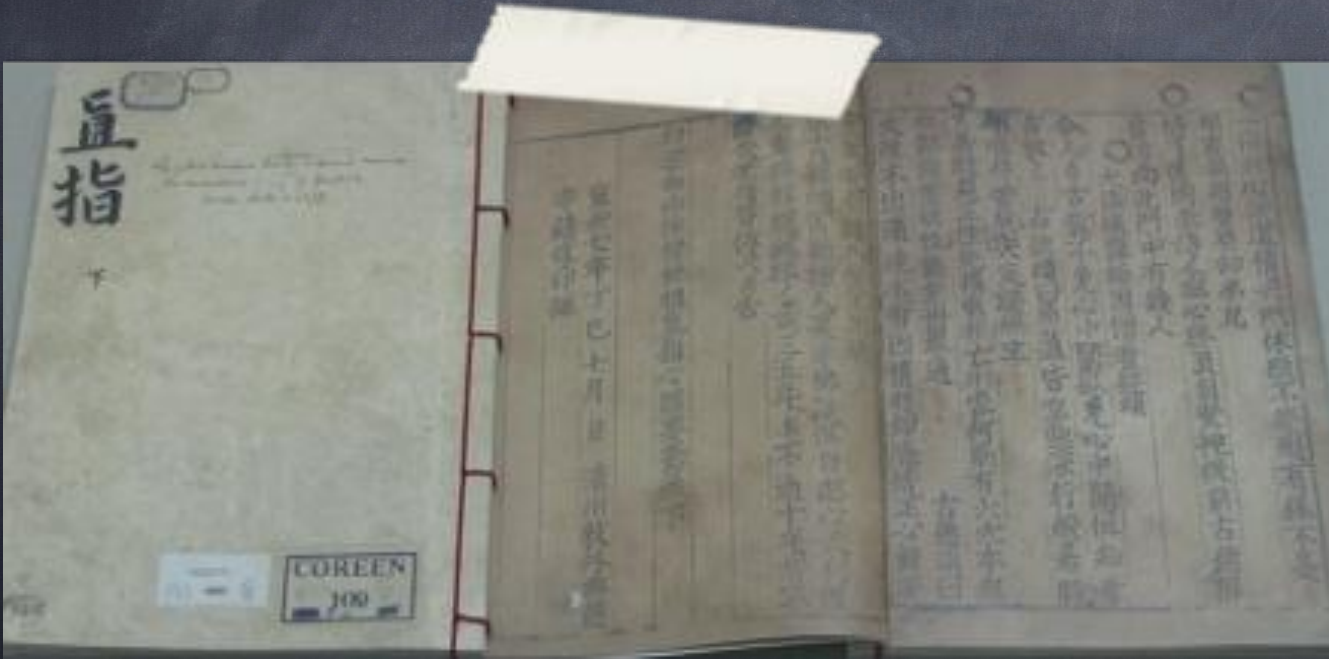


뉴우튼
과학 혁명



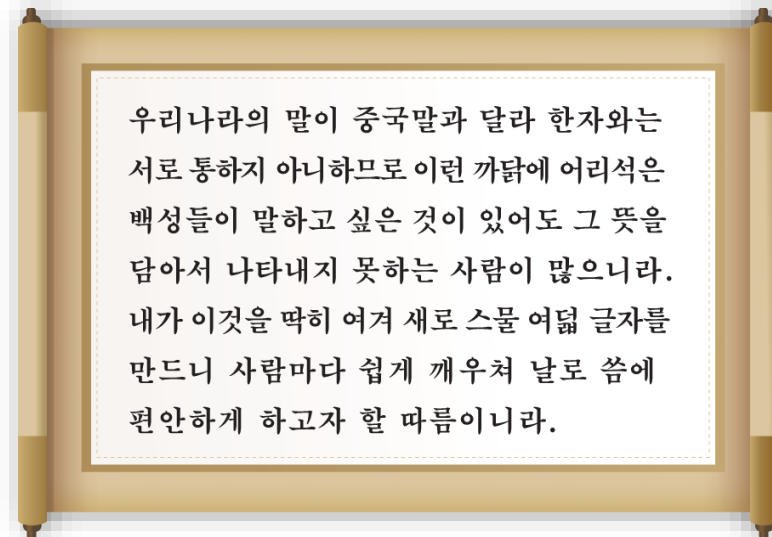
history of printing: 직지는 왜 ?

http://en.wikipedia.org/wiki/History_of_printing



직지는 왜 ?

- 한자와 인쇄술
- 팔만대장경은 왜 목판?
- 한글은 왜 ?



Some late, but still a chance here



Now encounter: Computer & Smart Technology




● ALPHAGO
00:10:29



● LEE SEDOL
00:01:00



**Another shock after Sputnik,
What direction for education ?**

A man and a robot are shown in profile, facing each other. The man is on the left, shirtless, with dark hair and a serious expression. The robot is on the right, with a white, human-like face and a metallic, mechanical body. The background is dark and moody. A semi-transparent black banner is overlaid across the middle of the image, containing the text.

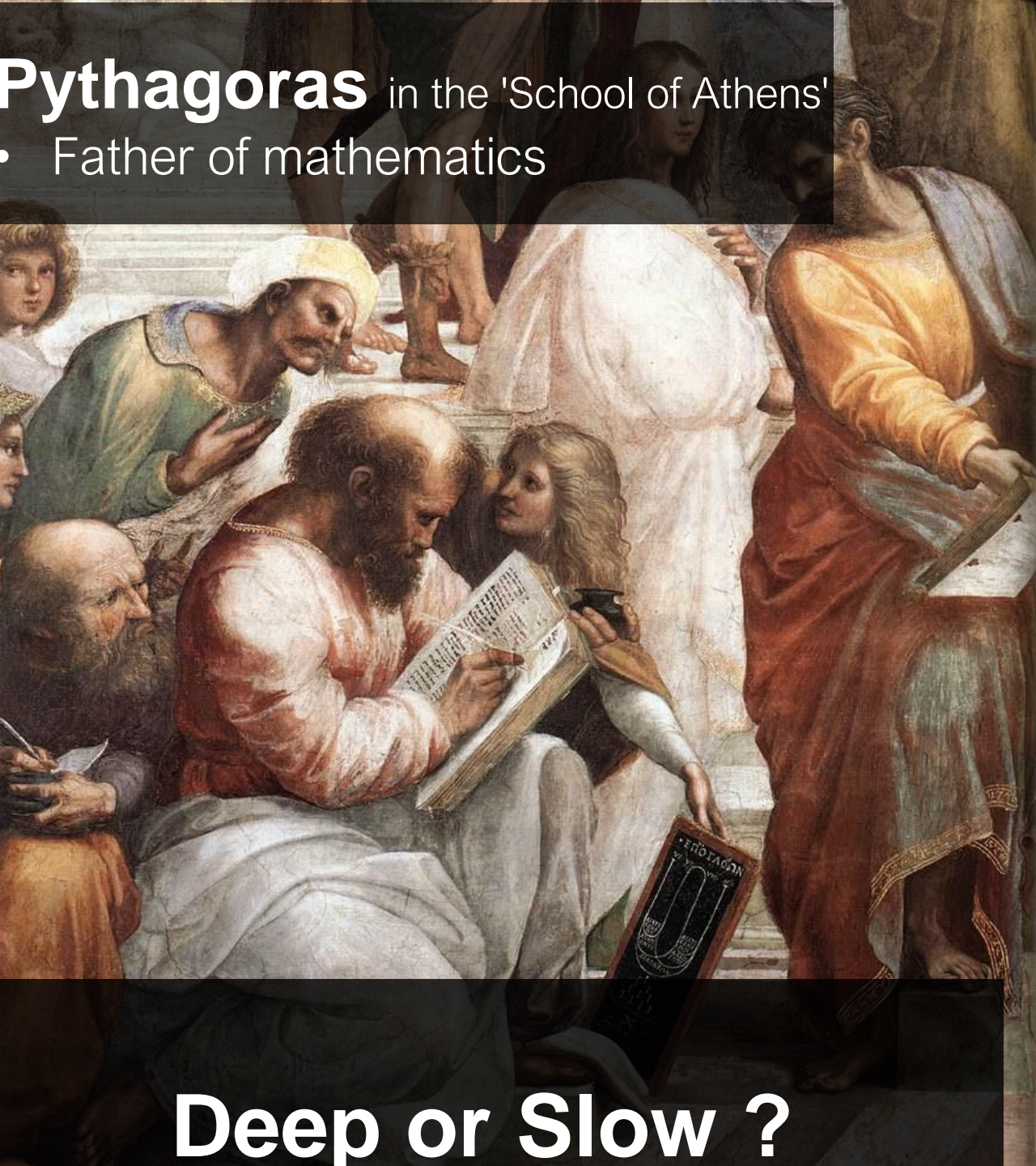
Man Vs Machine 누가 이길 것인가?



**Deep Learning by Machine ?
Slow Learning by Human ?**

Pythagoras in the 'School of Athens'

- Father of mathematics



Deep or Slow ?

17 Equations That Changed the World by Ian Stewart

1. **Pythagoras's Theorem** $a^2 + b^2 = c^2$ Pythagoras, 530 BC
2. **Logarithms** $\log xy = \log x + \log y$ John Napier, 1610
3. **Calculus** $\frac{df}{dt} = \lim_{h \rightarrow 0} \frac{f(t+h) - f(t)}{h}$ Newton, 1668
4. **Law of Gravity** $F = G \frac{m_1 m_2}{r^2}$ Newton, 1687
5. **The Square Root of Minus One** $i^2 = -1$ Euler, 1750
6. **Euler's Formula for Polyhedra** $V - E + F = 2$ Euler, 1751
7. **Normal Distribution** $\Phi(x) = \frac{1}{\sqrt{2\pi\rho}} e^{-\frac{(x-\mu)^2}{2\rho^2}}$ C.F. Gauss, 1810
8. **Wave Equation** $\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$ J. d'Alembert, 1746
9. **Fourier Transform** $f(\omega) = \int_{-\infty}^{\infty} f(x) e^{-2\pi i x \omega} dx$ J. Fourier, 1822
10. **Navier-Stokes Equation** $\rho \left(\frac{\partial \mathbf{v}}{\partial t} + \mathbf{v} \cdot \nabla \mathbf{v} \right) = -\nabla p + \nabla \cdot \mathbf{T} + \mathbf{f}$ C. Navier, G. Stokes, 1845
11. **Maxwell's Equations** $\begin{aligned} \nabla \cdot \mathbf{E} &= 0 \\ \nabla \times \mathbf{E} &= -\frac{1}{c} \frac{\partial \mathbf{H}}{\partial t} \end{aligned} \quad \begin{aligned} \nabla \cdot \mathbf{H} &= 0 \\ \nabla \times \mathbf{H} &= \frac{1}{c} \frac{\partial \mathbf{E}}{\partial t} \end{aligned}$ J.C. Maxwell, 1865
12. **Second Law of Thermodynamics** $dS \geq 0$ L. Boltzmann, 1874
13. **Relativity** $E = mc^2$ Einstein, 1905
14. **Schrodinger's Equation** $i\hbar \frac{\partial}{\partial t} \Psi = H \Psi$ E. Schrodinger, 1927
15. **Information Theory** $H = - \sum p(x) \log p(x)$ C. Shannon, 1949

Gloomy Goals: Education vs Literacy

여전히 글과 수를 읽는 것은 어렵다.....

- Jomtien Decade started in 1990:
- From Literacy for All to Education for All by 2000 (1990-2000 one decade), but delayed again.
- “universal access to basic education by 2015!” in 2000 at Dakar WEF.
- Incheon Declaration in 2015 for Global Citizenship Education.
- Six-year basic primary education seems to have reached at least in reports by 2015.
- However, 1 in 5 of world population are still illiterate, 2/3 are women.

학습 혁명은 무엇을 말하는가?

학습혁명이란.....

학습이 쉬운 일이 되는 것이며,
학습이 모두의 것이 되어야한다.



TIME

Subscribe

More People Have Cell Phones Than Toilets, U.N. Study Shows

Out of the world's estimated 7 billion people, 6 billion have access to mobile phones. Only 4.5 billion have access to working toilets

By Yue Wang | March 25, 2013

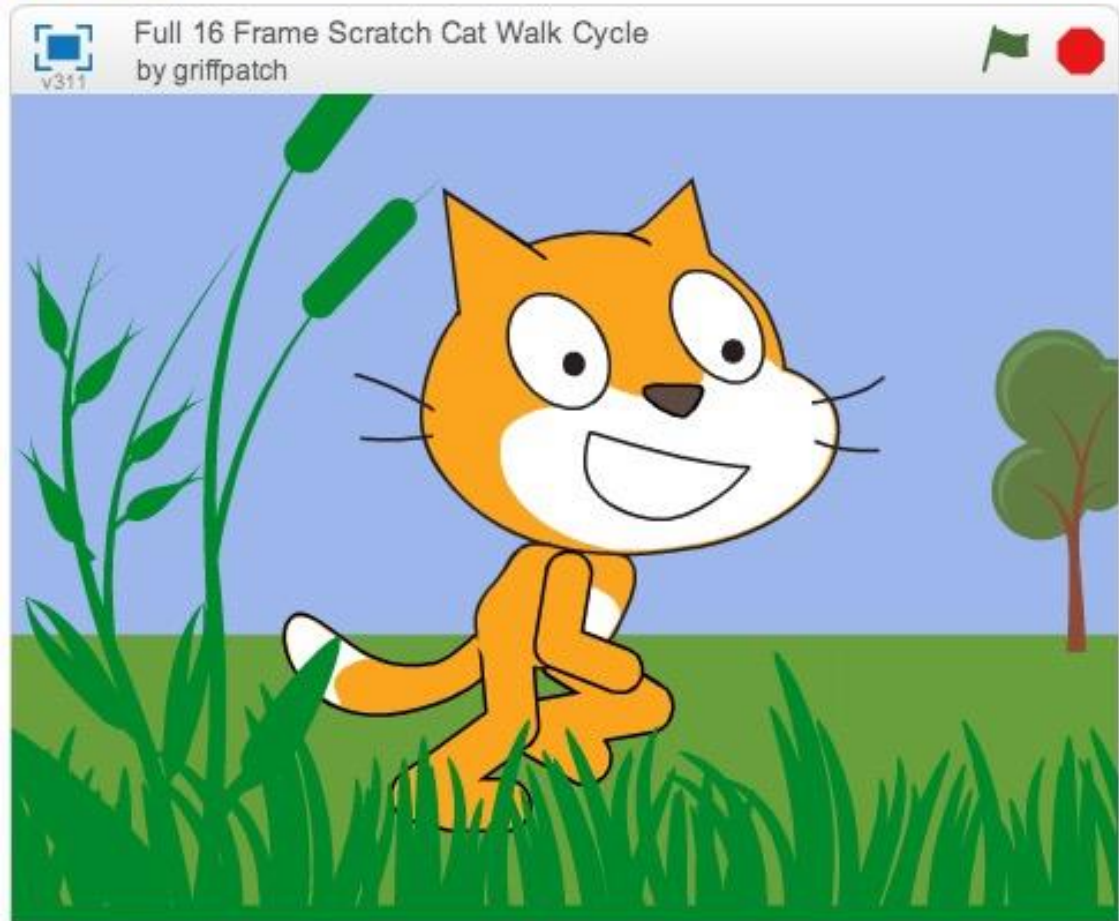
On the eve of [World Water Day](#) last week, the U.N. offered a sobering statistic: according to its recent [study](#), more people on earth have access to cell phones than toilets.

Out of the world's estimated 7 billion people, 6 billion have access to mobile phones. Far fewer — only 4.5 billion people — have access to working toilets. Of the 2.5 billion who don't have proper sanitation, 1.1 billion defecate in the open, according to the study.







Joseph Van Os / Getty Images







x: 240 y: -180

Sprites

New sprite:    

Stage 1 backdrop

New backdrop:  

Scratch Cat Tree_3 Glass-Tal... Glass-Tal... grass3

grass2 Tree_2

Scripts Costumes Sounds

- Motion
- Looks
- Sound
- Pen
- Data
- Events
- Control
- Sensing
- Operators
- More Blocks

- when green flag clicked
- when space key pressed
- when this sprite clicked
- when backdrop switches to backdrop
- when loudness > 10
- when I receive message1
- broadcast message1
- broadcast message1 and wait

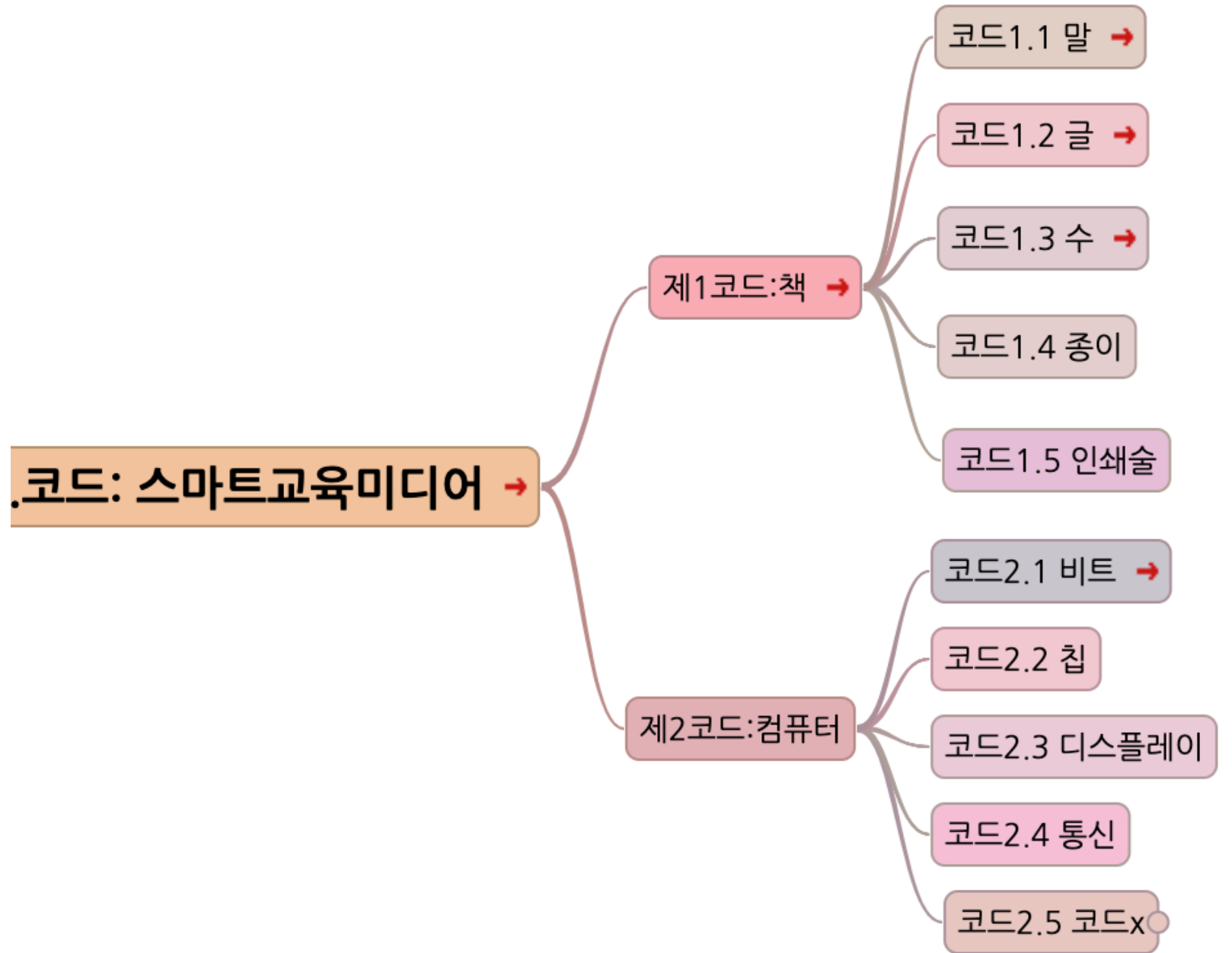
Remix See project page

- when green flag clicked
 - forever
 - wait 0.02 secs
 - next costume
- when this sprite clicked
 - set size to 50 %
 - go to x: -195 y: -123
 - clear
 - switch costume to Walk1
 - repeat 8
 - stamp
 - change x by 55
 - next costume
 - set size to 120 %
 - go to x: 0 y: 55

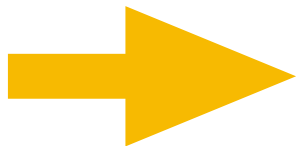


- 
- A globe of the Earth is shown, held by several hands of different skin tones (light, medium, and dark brown) against a bright blue sky with scattered white clouds. The hands are positioned around the globe, with some fingers resting on its surface. A semi-transparent dark rectangle is overlaid on the center of the image, containing two bullet points in white text.
- If you have some limited money, which do you choose now for global citizenship building; building a school or giving a smartphone?
 - **I will give them smartphone.**

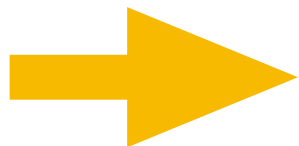
첫번째 코드: 책 Book
두번째 코드: 컴퓨터



7자유학과/
사서삼경



언수사과음미
체



9 스마트역량

